



Research Article

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Writing in Science

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Abstract

Scientific knowledge entails rigour and control, both as a process of creating a reasoned view of reality and also as the product of results that shape the dissemination of science. The publication is critical for the development of science and the career of the academic/scientist. This article discusses some aspects of writing in science, in a stance that starts from the authors' scientific area – Sociology/Social Sciences –, using the scientific publication in specialized journals as a paradigmatic case. The results allow concluding that writing in science does not provide the indication of principles to be pursued and that it is shaped as more than rigid self-sufficient rules for the production of a scientific-type text. This topic is particularly relevant in the current context, in which the process of scientific publication is undergoing a profound reformulation.

Keywords: academic writing, scholarly writing, science writing, journal publication, scientific publication

1. Introduction

Scientific knowledge entails rigour and control, both in the process of creating a reasoned stance of reality and also in producing results that shape the dissemination of science (Sá, Ferreira, & Serpa, 2019; Sá, Ferreira, Santos, & Serpa, 2020; Serpa & Ferreira, 2018a, 2018b; Serpa & Ferreira, 2019), a paradigmatic case being the scientific publication in specialized journals. This article discusses some aspects of writing in science for its extreme relevance and, as Bruno Latour (2007) states, considering that “writing in the social sciences is the equivalent of the laboratory in the exact sciences. Until a social scientist has

found the right textual strategy for his or her object of study, the social scientist is not objective" (p. 75).

The writing of a scientific paper is, then, undeniably relevant to science itself, the academics' career and the students' success, especially graduate students (Ferreira & Serpa, 2018a; Sanganyado, 2019; Sayer, 2019; Ramírez-Castañeda, 2020; Jusino, 2020; Badenhorst & Xu, 2016; Chen, 2019; Phillips Galloway, Qin, Uccelli, & Barr, 2019). However, this topic still needs to be clarified to improve the researchers' scientific writing competences (Huerta & Garza, 2019; Wortman-Wunder & Wefes, 2020; Renck Jalongo & Saracho, 2016; Sá et al., 2020), although each journal provides specific information in the guidelines for authors (Flores-Mir, 2019; Sanganyado, 2019; Mestres & Sampathkumar, 2019; Wickman & Fitzgerald, 2018; Neill, 2019).

2. Scientific Writing

2.1 What?

Several types of manuscripts can materialize a scientific publication, such as research articles, literature reviews, essays based on the author's positioning and comments based on scientific argumentation, among others, each one of which has scientific specificities (Mestres & Sampathkumar, 2019; Serpa, Ferreira, & Santos, 2020; Santos, Ferreira, Serpa, & Sá, 2020; Serpa, Ferreira, & Santos, 2017).

About the scientific publication, as Renck Jalongo and Saracho (2016) state, "Usually, something that fits the intersection of the four is a particularly fertile area for generating ideas for scholarly writing projects" (p. 49). Table 1 depicts the fundamental topics to consider in scientific writing.

Table 1. Identifying topics for scientific writing

Formal academic credentials
Practical professional experience
Current role, and personal/professional interests
Future aspirations and learning goals

Source: Renck Jalongo, & Saracho (2016, p. 50).

The format of the manuscript to submit for a journal publication varies according to its type. However, this article considers the components presented in Table 2, which, with possible adaptations, should be included.

Table 2. Elements in a journal publication

Title
Author's name and institutional affiliation
Abstract
Keywords
Introduction
Justification or scientific background
Methods
Results
Discussion
Conclusion
Limitations
References
Annex (if applicable)

Source: Own production.

However, content and style are intrinsically articulated in the academic text (Kozak & Hartley, 2019), inasmuch that “Publishing a scientific paper is not just creating a manuscript. It is an art in the first part and science in the second” (Mestres & Sampathkumar, 2019, p. 335). The paper discusses this topic in the next section.

2.2 How?

Readability, brevity and the possible simplicity in writing a scientific publication so that its content is understood by the reader (Merkle, 2019; Serpa & Santos, 2020; Santos & Serpa, 2020) are critical elements in any scientific publication (Sanganyado, 2019; Mestres & Sampathkumar, 2019; Santos et al., 2020). Kozak and Hartley (2019) advocate that

A scientific writer should present difficult concepts in a way that makes them comprehensible, if not easy to understand. Making simple what is difficult is the virtue of a good writer; making difficult what is simple is the sign of a bad writer (p. 69).

In general, as Sayer (2019) states, “know your audience” is central to successful communication in what the author calls the SUCCES acronym, as presented in Table 3.

Table 3. SUCCES

Simple	Keep it simple by finding the main message and sticking to it.
Unexpected	Use the unexpected to grab the reader's attention (e.g. a knowledge gap, unforeseen consequences, an unusual feedback).
Concrete	Make the central concept easily grasped and remembered.
Credible	Support your interpretation and discussion with evidence.
Emotional	Stimulate interest and highlight the relevance of the study to make people care about the research.
Story	People enjoy and remember stories, so a good manuscript is a narrative about your research, with a logical train of thought.

Source: Adapted from Sayer (2019, pp. 1576-1577).

About writing (Renck Jalongo & Saracho, 2016), Umberto Eco (2015) offers a very pertinent principle for the elaboration of a document in the form of scientific writing. This principle is based on the premise that the author(s) should write their piece of research assuming that the reader is intelligent and knowledgeable of the subject but distracted in its reading. This involves careful and articulate writing, explaining all that is not obvious:

Sentences, paragraphs and sections can all be structured in three parts: the beginning provides vital information to understand the context, the middle contains relevant supporting material and the end emphasizes key messages. [...] Avoiding logic gaps is a balancing act: you need to provide enough information for a non - specialist to understand the paper without burdening the reader with detail or simplistic statements (Sayer, 2019, pp. 1578).

One element to consider is the possible collaboration between authors in the writing of a manuscript in its various writing stages, as described in Table 4.

Table 4. Writing phases of a manuscript

Pre-writing level	Preparation of the manuscript, selection of journal instructions, ...
Writing level	Development of the manuscript as a product.
Post-writing level	Submission and possible reformulation, culminating in publication.

Source: Based on Somashekhar (2020).

This collaboration between authors has the advantage of enriching the quality of writing, considering the different perspectives applied. However, in some situations, not all co-authors have the same availability of work and/or a constructive collaborative spirit of participation and acceptance. In these cases, it is necessary to take into account that “Collaboration with other authors – as with other relationships, ranging from domestic to business partners – is a joy when it works and a torment when it does not” (Renck Jalongo & Saracho, 2016, p. 286).

3. Final Remarks

The brief notes alluded to above allow concluding that writing in science does not provide an indication of principles to be pursued and that it is assumed to be more than rigid self-sufficient rules for the elaboration of a scientific-type text.

Any work of a scientific nature has to respond to a set of requirements: (i) the activity of thinking, associated with the activity of knowing; (ii) critical argumentation; (iii) scientific and ethical rigor; and (iv) consistency of theoretical and methodological options. A written work of a scientific nature supposes a triple activity: problematization – moving from social visibility to scientific visibility –, conceptualization – specifying the meaning of the concepts and the conceptual relationships used – and argumentation. Argumentation, based on the problematization and conceptualization components, aims to develop an argumentative strategy that critically organizes the articulation of ideas, the path to follow and the monitoring of the possibility of the emergence of an ideological argument (Châtel, 2009). The authors hope that this work will be a contribution in this regard.

A scientific manuscript is never written in its final form in the first version (Renck Jalongo & Saracho, 2016). This is especially visible in the current context of scientific production and dissemination, in which the process of scientific publishing is undergoing a profound reformulation (Neill, 2019; Sá et al., 2020; Serpa, 2019a, 2019b; Ferreira & Serpa, 2018a, 2018b; Santos & Serpa, 2017). Examples of this are, among other features, the unstoppable process of open access, the pre-print publication, the rise of open review, the rise of the centrality of the scientific impact and the increasing centrality of social networks (Ferreira & Serpa, 2018c, 2018d). As Badenhorst and Xu (2016) state,

[...] writing and publishing is a situated social practice that is far from linear. Instead it is tied to subject-positions within the discourses we write, to publishing access and inequities and to the way we, and the disciplines we write for, view knowledge (p. 13).

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